

REMARKS

The pending claims are claims 1-22. In the Office Action of July 3, 2003, the Examiner rejected claims 17 and 18 under 35 U.S.C. § 112 as being indefinite. The Examiner rejected claims 1-4, 9-14, and 17-20 under 35 U.S.C. § 103(a) as being unpatentable over the Koyama et al. patent (U.S. Patent No. 6,170,546) in view of the EP '723 reference (EP 538723) and at least one of the Lurois patent (U.S. Patent No. 5,297,604), the Japan '810 reference (JP 3-016810), and the Semin et al. patent (U.S. Patent No. 4,641,696). The Examiner rejected claims 5-8 under 35 U.S.C. § 103(a) as being unpatentable over the Koyama et al. patent in view of the EP '723 reference and at least one of the Lurois patent, the Japan '810 reference, and the Semin et al. patent, and further in view of the Henry reference (WO 96/36501). The Examiner rejected claims 15 and 16 under 35 U.S.C. § 103(a) as being unpatentable over the Koyama et al. patent in view of the EP '723 reference and at least one of the Lurois patent, the Japan '810 reference, and the Semin et al. patent, and further in view of the Goergen et al. patent (U.S. Patent No. 4,823,855). The Examiner rejected claims 21 and 22 under 35 U.S.C. § 103(a) as being unpatentable over the Koyama et al. patent in view of the EP '723 reference and at least one of the Lurois patent, the Japan '810 reference, and the Semin et al. patent, and further in view of the Trabandt et al. patent (U.S. Patent No. 5,549,146).

Amendment to the Drawings

As shown above in the Amendment to the Drawings section, Applicants submit herewith a revised Fig. 3, which adds reference numeral 15. No new matter has been

added by this amendment. Support for this amendment may be found in the application, for example, at page 9, lines 25-30.

35 U.S.C. § 112: Claims 17 and 18

In the Office Action, the Examiner rejected claims 17 and 18 as indefinite, asserting that the relationship between (a) the claimed "means for mutual engagement of the blocks of the intermediate and central rows" of claims 17 and 18 and (b) the circumferential sipes of claim 1 is unclear. (*Office Action*, p. 2.) Applicants first note that all occurrences of "circumferential sipes" in the claims have been amended herein to -- longitudinal sipes -- to conform with the precise verbiage in the specification. No new matter has been added by these amendments.

As shown above in the Amendments to the Claims section, Applicants have amended claim 17 to recite "The tyre of claim 1, wherein the longitudinal sipes separating the central and intermediate rows of blocks are straight" and amended claim 18 to recite "The tyre of claim 17, wherein the longitudinal sipes separating the central and intermediate rows of blocks have a zigzag pattern." No new matter has been added by these amendments. Applicants submit that amended claims 17 and 18 are sufficiently definite.

35 U.S.C. § 103(a): Claims 1-22

Of claims 1-22, claim 1 is independent and the remaining claims ultimately depend therefrom. The Examiner rejected claims 1-22 under § 103(a) as being unpatentable over at least the Koyama et al. patent in view of the EP '723 reference and at least one of the Lurois patent, the Japan '810 reference, and the Semin et al. patent.

In particular, the Examiner acknowledged that the Koyama et al. patent does not disclose that the first and second transverse grooves have a depth equal to at least 95% of the thickness of the tread. (See *Office Action*, p. 3.) Instead, the Examiner asserted that it would have been obvious to one of ordinary skill in the art to provide the transverse grooves of the Koyama et al. patent with a depth of at least 95% of the tread thickness because (1) the Koyama et al. patent allegedly shows the transverse grooves having a depth equal to the depth of wide circumferential grooves that have a depth of 18-21 mm and (2) the EP '723 reference allegedly suggests using relatively deep grooves, such as a depth of 22 mm, such that the deepest grooves extend into the relatively thin tread base. (See *id.*) The Examiner noted that Applicants' claim 1 did not require constant depth first and second transverse grooves. (*Id.* at p. 4.) With respect to the EP '723 reference, the Examiner further asserted that the "thickness of the tread" in Applicants' claim 1 reads on the EP '723 reference's "thickness of the tread cap," and that the EP '723 reference suggests using a groove depth of greater than 100% of the thickness of the tread cap, which falls within Applicants' claimed range of at least 95%. (*Id.*) The Examiner also stated that the EP '723 reference teaches that the thickness of the tread cap is greater than the thickness of the tread base and that the outer cap encompasses at least 25% of the depth of the deepest grooves and the tread base encompasses up to 75% of the depth of the deepest grooves. (*Id.*)

Applicants respectfully traverse these rejections. To establish a *prima facie* case of obviousness, the Examiner must satisfy three requirements, one of which is to show that the prior art reference, or the combination of references, teaches or suggests all of the limitations of the claims. See, e.g., *In re Wilson*, 165 USPQ 494, 496 (C.C.P.A.

1970). However, none of the Koyama et al. patent, the EP '723 reference, the Lurois patent, the Japan '810 reference, nor the Semin et al. patent discloses or suggests, *inter alia*, "a depth of the first and second transverse grooves is equal to at least 95% of the thickness of the tread along the entire length of the first and second transverse grooves," as recited in Applicants' amended claim 1.

First, the Koyama et al. patent is directed to a heavy duty pneumatic tire including variable width grooves and constant width grooves. This patent discloses a tire 1 having a tread portion 5 with a tread face 5s. (See the Koyama et al. patent, col. 1, lines 64-66 and col. 2, lines 5-9.) In the tread face 5s, circumferential grooves G extend continuously in the circumferential direction and axial grooves Y are disposed to form blocks. (*Id.* at col. 2, lines 27-29.) The circumferential grooves G include wide circumferential grooves G1, narrow circumferential grooves G2, and fine circumferential grooves G3. (*Id.* at col. 2, lines 30-34 and 50-55.) The grooves G1 have a depth Hg1 and are deeper than any other groove of the circumferential grooves G and axial grooves Y. (*Id.* at col. 2, lines 60-62.) The groove depth Hg1 is 18 to 21 mm. (*Id.* at col. 2, lines 64-65.) The groove depths of the narrow grooves G2 and the fine grooves G3 are not more than the groove depth Hg1 of the wide grooves G1, and are 10 to 13 mm. (*Id.* at col. 3, lines 4-7.) This patent does not provide specific depths of the axial grooves Y.

In the Office Action, the Examiner asserted that Fig. 1 of the Koyama et al. patent shows a depth of the transverse grooves at the outer ends thereof is the same as the depth of the wide circumferential grooves. (*Office Action*, p. 3.) To the contrary, Fig. 1 illustrates that groove Y has the same depth as narrow grooves G2 and fine grooves

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G3, but not wide grooves G1. Moreover, as noted above, the Koyama et al. patent states that grooves G1 are deeper than any other groove, including other circumferential grooves G and axial grooves Y. Additionally, the Koyama et al. patent does not disclose or suggest any relationship between either the depth of any of the circumferential grooves G or of any of the axial grooves Y with respect to a tread thickness. Accordingly, Applicants submit that this reference does not disclose or suggest at least "a depth of the first and second transverse grooves is equal to at least 95% of the thickness of the tread along the entire length of the first and second transverse grooves," as recited in Applicants' claim 1.

Next, the EP '723 reference is directed to a tire with a dual cap tread. The reference discloses that the tire 1 includes a tread 2 that is represented by a cap element that is divided into an inner cap layer 7 and an outer cap layer 8. (The EP '723 reference, p. 5, lines 6-11.) The tread 2 includes grooves 11 of varying depths, shown as deep grooves 11a and shallow grooves 11b. (*Id.* at p. 5, lines 13-14.) The tread cap has an overall thickness of about 6.5 to about 25 mm, while the deepest grooves may have a depth of about 5.5 to about 22 mm. (See *id.* at p. 3, lines 31-32 and 39.) Applicants believe, however, that this reference discloses only longitudinal grooves, and not transverse grooves. In particular, the cross-sectional view of the Figure only shows longitudinal grooves, and nowhere in the specification are "transverse" grooves mentioned. Accordingly, Applicants submit that this reference does not disclose or suggest at least "a depth of the first and second transverse grooves is equal to at least 95% of the thickness of the tread along the entire length of the first and second transverse grooves," as recited in Applicants' claim 1.

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Last, the remaining references, namely, the Lurois patent, the Abstract of the Japan '810 reference, and/or the Semin et al. patent also do not disclose or suggest at least "a depth of the first and second transverse grooves is equal to at least 95% of the thickness of the tread along the entire length of the first and second transverse grooves." And in fact, the Examiner did not assert that these references disclose this limitation.

For at least the foregoing reasons, Applicants submit that claim 1 is not obvious over the Koyama et al. patent, the EP '723 reference, the Lurois patent, the Japan '810 reference, and/or the Semin et al. patent, either alone or in combination, and thus is allowable over these references. Because claims 2-22 all ultimately depend from claim 1, these claims should be allowable over these patents for at least the same reasons that claim 1 is allowable. See, e.g., M.P.E.P. § 2143.03 ("If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious.") (citing *In re Fine*, 5 USPQ2d 1596 (Fed. Cir. 1988)).

Conclusion

In view of the foregoing amendments and remarks, Applicants respectfully request the reconsideration and continued examination of this application and the timely allowance of the pending claims.

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Please grant any extensions of time required to enter this response and charge
any additional required fees to our Deposit Account No. 06-0916.

Respectfully submitted,

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Attachment: Replacement Sheet of Figs. 3-5, 9, and 11-13

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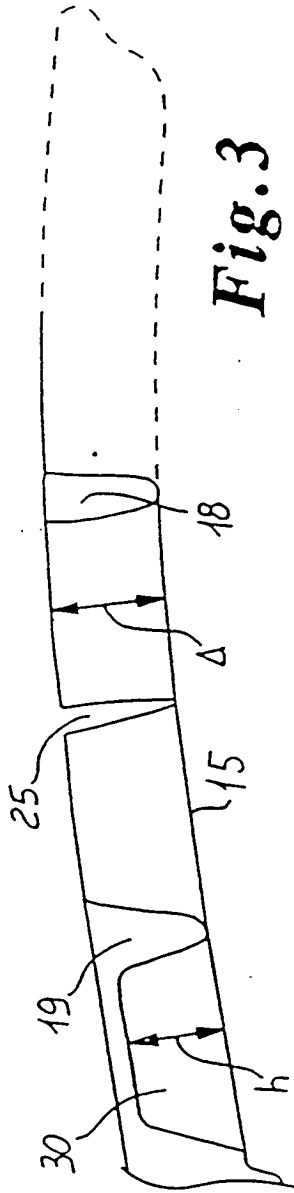


Fig. 3

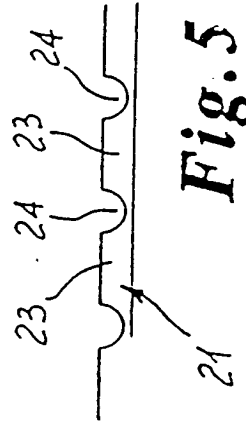


Fig. 4

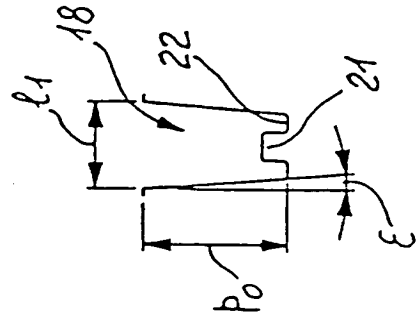


Fig. 5

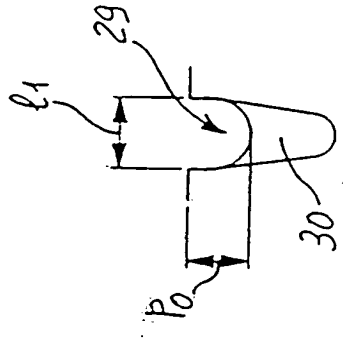


Fig. 9

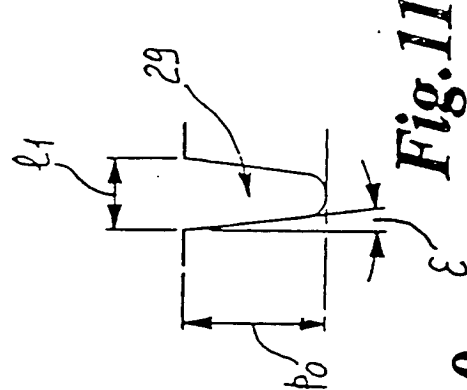


Fig. 11

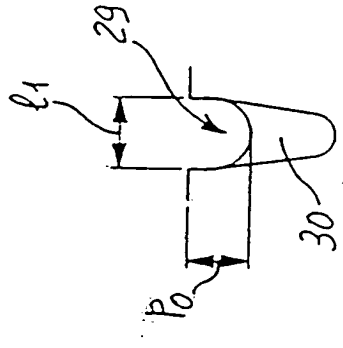


Fig. 12

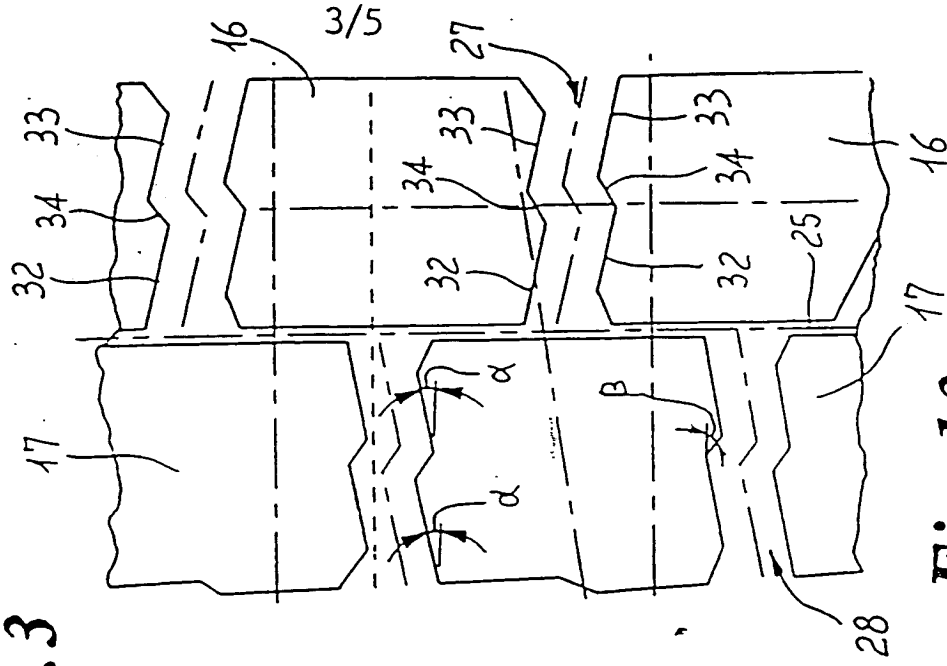


Fig. 13